SUCKLEY'S CUCKOO BUMBLE BEE (*Bombus suckleyi*)

October 2022

Photo 1 – Suckley's cuckoo bumble bee. Photo credit: Hadel Go, AMNH.

Status

State: State: On September 30, 2022, the Suckley's cuckoo bumble bee was given Candidate status under the California Endangered Species Act (CESA). Candidate species are given protection under CESA until a determination is made on their listing status.

Federal: On May 11, 2022, a finding was published in the Federal Register that listing the Suckley's cuckoo bumble bee as endangered may be warranted, and its listing status is currently under review.

Species Information and considerations for timber harvest planning

Species Information

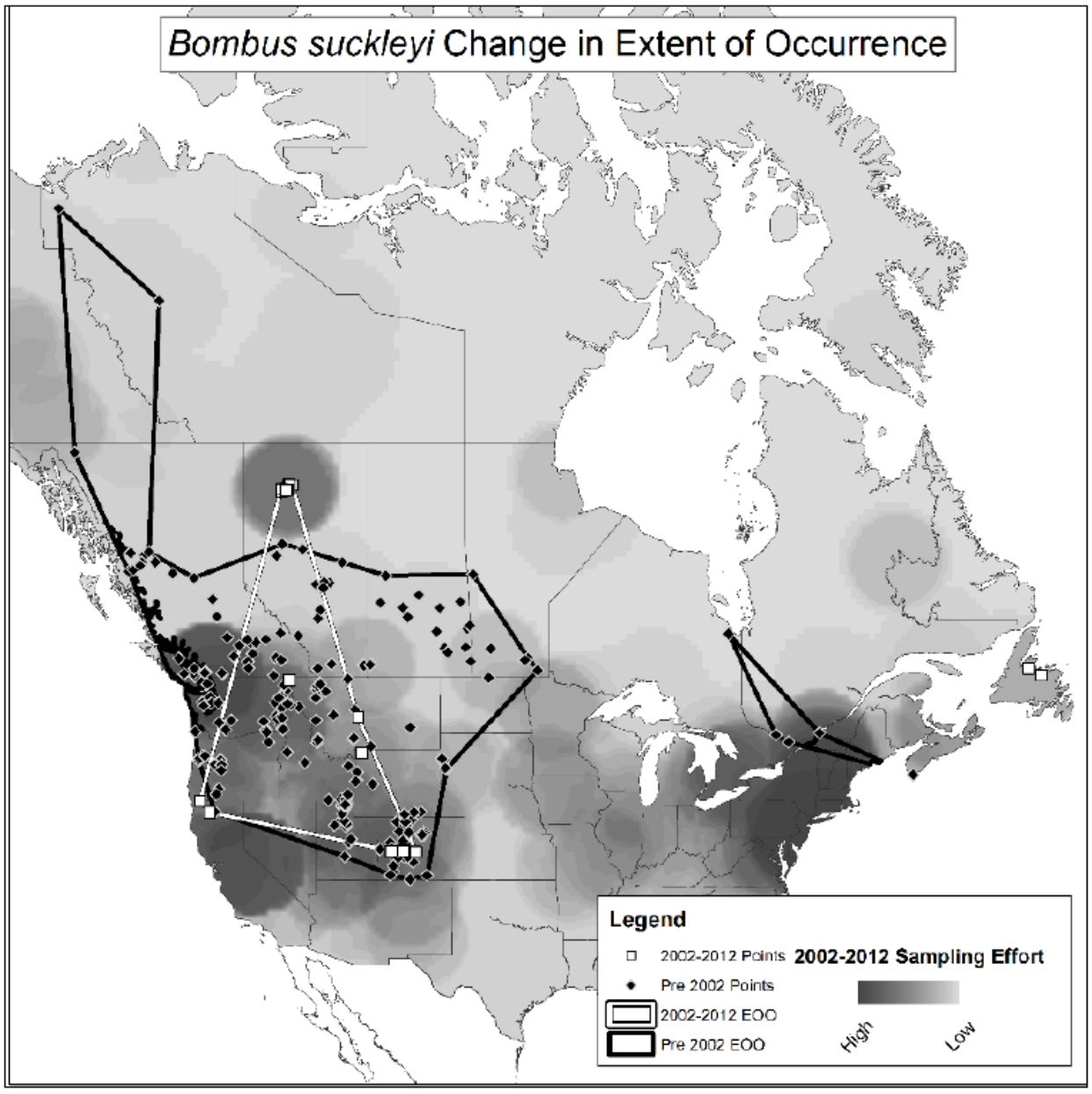
The Suckley's cuckoo bumble bee has been rarely found in California and has a limited range in the northernmost part of the state that was determined based on only a few recorded detections. Its distribution, range, and abundance are not well known due to the rarity of this species.

The Suckley's cuckoo bumble bee is considered a "social parasite". The female of this species invades and take over the nest of their host species, kill or subdue their queen, and use the colony workers to help raise the Suckley's cuckoo bumble bee's eggs and young. The main host species for the Suckley's cuckoo is the western bumble bee which is also thought to be in decline and insufficient host populations may be the primary threat to this species.

The Suckley's cuckoo bumble bee requires flowers that are in bloom throughout the free flying portion of their life cycle. Because this species relies on its host, the western bumble bee, selected habitat must overlap with the needs of the host species. General habitat requirements for both species include areas with abundant flowering plants such as meadows and subalpine zones. Habitat includes meadows largely confined to mountainous regions.

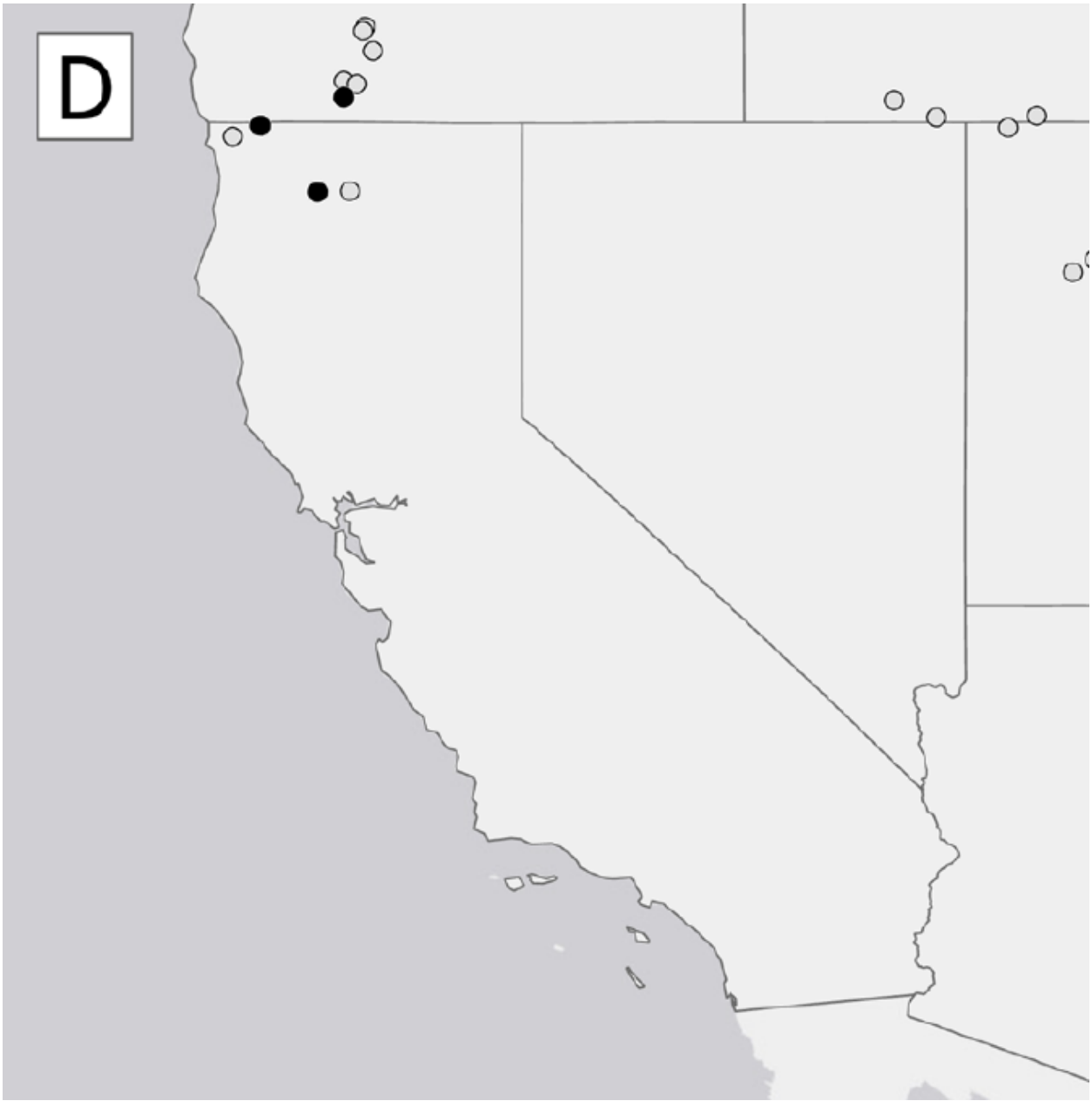
The flight period for this species is from late May to late October during which time they require habitat with abundant flowering plants. Very little is known about the overwintering sites of the Suckley's cuckoo bumble bee, though generally bumble bees overwinter in soft, disturbed soil or under leaf litter or other debris.

Map 1 – Created by the International Union for Conservation of Nature's Red List of Threatened Species (IUCN) to display the estimated range contraction in years 2002 to 2012 versus the range prior to 2002.



Surveys

There are only six general localities for the current assessed time period for the Suckley's cuckoo bumble bee. An extensive survey effort throughout the core of its historic range in 2018 and 2019 did not result in any detections. The last confirmed sighting of the Suckley's cuckoo bumble bee was in Oregon in 2017.



Map 2 - Current (filled circles, 2003–2019) and historic (open circles, before 2003) records of Suckley's cuckoo bumble bee. Data from: Richardson 2019 and The Xerces Society et al. 2019 (Hatfield and Jepson 2021).

Threats

The Suckley's cuckoo bumble bee has a unique and additional threat outside of what other bumble bee species are experiencing due to its reliance on its host species, the Western bumble bee, for survival. The Western bumble bee is also thought to be suffering large declines in population and distribution and may therefore have a detrimental effect on the population of the Suckley's cuckoo bumble bee. Other threats to this, and other bumble bee species include: landscape scale habitat alteration that reduces diverse floral availability and access to nesting and overwintering sites which includes urbanization and conversion to agricultural uses, fire suppression leading to forest density increase and encroachment into open areas, toxic effects and habitat loss due to herbicide, grazing, competition with managed bees, disease, pesticides, insecticides (including neonicotinoids), fungicides, population dynamics, and climate change.

Information above compiled from: A Petition to the State of California Fish and Game Commission - The Xerces Society, Report to the Fish and Game Commission Evaluating the Petition to List Four Species of Bumble Bees, Petition to List Suckley's Cuckoo Bumble Bee under the Endangered Species Act (Federal) and sources cited therein.

Photo 2 – Habitat for the Suckley's cuckoo bumble bees. Photo Credit: Jess Burns

Considerations for timber harvest planning

For projects within the range of the Suckley's cuckoo bumble bee, the species should be addressed within the timber harvesting document. Given that the Suckley's cuckoo bumble bee needs a diverse supply of flowers throughout the colony's flight period, open meadows and other wet areas are considered the bees most important habitat type. Since meadows and wet areas are afforded protection measures under the FPRs, it is not expected that habitat modification will result. Discuss all standard, and any additional protection measures that would minimize negative effects to meadows and wet areas. Timber harvesting that promotes

open areas mixed in forested areas, or restores meadows from encroaching conifers, have the potential to provide a benefit to the species by increasing the abundance of flowering plants. Include discussion on any potential benefits to the species that may result from the proposed project.

Herbicide use that reduces the abundance of diverse floral resources has been listed as a potential threat to bumble bees. If herbicide use is proposed, discuss any resource protection measures that will be used to mitigate any negative impacts on diverse floral availability including season and extent of use.

References

Endangered and Threatened Wildlife and Plants; 90 Day Findings for Three Species; 86 Fed. Reg. 25833 (May 11th, 2021).

Hatfield, G. R. and S. Jepsen. 2021. A conservation conundrum: protecting bumble bees under the California Endangered Species Act. The Xerces Society for Invertebrate Conservation, Portland, OR.

Additional Information

Petitions to List Species Under the California Endangered Species Act

US Fish and Wildlife ECOS Species Listing Status and Information

Factors affecting bee communities in forest openings and adjacent mature forest | Treesearch (usda.gov)

The Pacific Northwest Bumble Bee Atlas: Summary and Species Accounts | Xerces Society

Postharvest Bee Diversity is high but declines rapidly with stand age in regenerating douglas fir forests -Rivers and Betts 2021 Forest Science (oregonstate.edu)

Wild bee distribution near forested landscapes is dependent on successional state | Forest Ecosystems

Forest-bee-pollinators – Oregon Department of Forestry

Importance of Forests in Bumble Bee Biology and Conservation | BioScience | Oxford Academic (oup.com)

Western bumble bee: Declines in United States and range-wide information gaps | U.S. Geological Survey (usgs.gov)

IUCN Assessments for North American Bombus spp. for the North American IUCN Bumble Bee Specialist Group (researchgate.net)

Bumble Bees of the Western United States - USFS

IUCN Red List - Species Information and Assessment

Research in Progress – Evaluating the response of native pollinators to fuel-reduction treatments in managed conifer forests, Oregon State University.pdf